Montana Department of Natural Resources and Conservation
Water Resources Division
Water Rights Bureau

ENVIRONMENTAL ASSESSMENT
For Routine Actions with Limited Environmental Impact

Part I. Proposed Action Description

1. Applicant/Contact name and address: Montana Prairie Nest
527 Prairie Nest Road
Great Falls, MT 59405

2. Type of action: Application for Beneficial Water Use Permit 41Q-30026974

3. Water source name: Groundwater (Madison Group)

4. Location affected by project: The point of diversion is a well located in the SW NW SE, Section 6, T20N, R6E, Cascade County.

5. Narrative summary of the proposed project, purpose, action to be taken, and benefits:

This permit application is for a well completed in the Madison Formation. The water will be utilized for 892.0 acres of irrigation lying under two half mile long center pivots. The applicant is requesting to divert 350 gallons per minute (gpm) up to 564.6 acre-feet (AF) annually. The water will be conveyed year round from the well to a 1,962 AF existing reservoir (East Rogers Coulee) located in the East half of Section 6, T20N, R6E, Cascade County. A pump station will be installed at the reservoir which will provide water for the two pivots from April 1 to October 31 of each year.

The DNRC shall issue a water use permit if an applicant proves the criteria in 85-2-311 MCA are met.

6. Agencies consulted during preparation of the Environmental Assessment:
(include agencies with overlapping jurisdiction)

Dept. of Environmental Quality Website - TMDL 303d listing
MT. National Heritage Program Website - Species of Concern
USDI Fish & Wildlife Service Website - Endangered and Threatened Species
MT State Historic Preservation Office - Archeological/Historical Sites
USDA Natural Resources Conservation Service – Web Soil Survey
USDI Fish & Wildlife Service – Wetlands Online Mapper

Part II. Environmental Review

1. Environmental Impact Checklist:

PHYSICAL ENVIRONMENT

WATER QUANTITY, QUALITY AND DISTRIBUTION

Water quantity *- Assess whether the source of supply is identified as a chronically or periodically dewatered stream by DFWP. Assess whether the proposed use will worsen the already dewatered condition.*

Determination: Minor impact.

The applicant requests to withdraw 564 AF of water from the Madison aquifer. The Madison Aquifer consists of limestone and dolomite of the Lodgepole and Mission Canyon formations of the Mississippian age Madison Group. Water infiltrates the Madison Aquifer from streams where they cross its outcrops in the Little Belt Mountains and where limestone has been dissolved to form solution openings and caverns. Within the Madison Aquifer, water flows generally northward from the Little Belts and discharges, in part, from springs including Giant Springs near Great Falls. Water that discharges from Giant Springs, estimated to be 600 cubic feet per second (cfs), flows from the Madison Aquifer through fractures in overlying Kootenai and Morrison formations. Therefore, drawdown from pumping the proposed well that propagates through the Madison Aquifer can also propagate upward through the overlying strata and, thereby, reduce ground-water discharge to Giant Springs. The delay before discharge to Giant Springs is reduced by pumping the proposed well and the magnitude of that reduction is uncertain. Based on the requested flow volume of 574 AF, the maximum reduction could be as much as 0.8 cfs.

The application states that water could potentially increase flows and available water in the Rogers Coulee watershed, a tributary to Belt Creek, particularly during the irrigation season.

Water quality *- Assess whether the stream is listed as water quality impaired or threatened by DEQ, and whether the proposed project will affect water quality.*

Determination: Low likelihood of impact.

The adjacent drainage area known as Rogers Coulee is not currently listed as impaired or threatened by the MT DEQ. The reach of Belt Creek fed by Rogers Coulee has been designated as needing a TMDL plan. The 2006 303d listing shows that agriculture is partially supported and identifies impairments derived chiefly from acid drainage associated with abandoned mine activities. As stated above the proposed project could increase flows and the available water supply in Rogers Coulee and thus, eventually, benefit Belt Creek itself.

Groundwater *- Assess if the proposed project impacts ground water quality or supply. If this is a groundwater appropriation, assess if it could impact adjacent surface water flows.*

Determination: Low likelihood of impact.

The proposed project will consist of an 8-inch diameter well drilled 800 feet into the Madison Aquifer. At present there are 19 wells located within six miles of the proposed well that have sources identified as the Madison Aquifer in GWIC. The applicant monitored two wells within

the near vicinity of the proposed well. Given that the proposed project would lead to an annual projected drawdown of 7.5 feet in the closest well (76') and 3.6 feet for a domestic well 1870' away, and given that these wells have several hundred feet of water column beneath the pumping water level, this appropriation of water is not expected to impact other ground-water users within the Madison Aquifer.

The consultant used Darcy's law to estimate the total flux through a 12-mile wide transect based upon the ROI, a transmissivity value of 8,808 ft^2/day based upon aquifer test results and a gradient of 0.0039. Using this method, the estimated flux was 29,458.35 AF/YR. The consultant estimates the total legal demand on the aquifer through this transect at 2,312.8 AF/YR, which equates to 8 percent of the estimated flux.

DIVERSION WORKS - *Assess whether the means of diversion, construction and operation of the appropriation works of the proposed project will impact any of the following: channel impacts, flow modifications, barriers, riparian areas, dams, well construction.*

Determination: Low likelihood of impact.

The well has been constructed according to applicable MT Board of Water Well Contractors standards. Applicant intends to install an electric 60-hp Goulds submersible pump. Water will be conveyed from the well to an existing reservoir. A pump station will convey the water from the reservoir to the center pivots through 16-inch PVC pipe.

UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES

Endangered and threatened species - *Assess whether the proposed project will impact any threatened or endangered fish, wildlife, plants or aquatic species or any "species of special concern," or create a barrier to the migration or movement of fish or wildlife. For groundwater, assess whether the proposed project, including impacts on adjacent surface flows, would impact any threatened or endangered species or "species of special concern."*

Determination: Low likelihood of impact.

The Montana National Heritage Program lists 2 species as Species of Concern within Township 20 North Range 6 East. Common names for these two species are the Greater Short-horned Lizard and the Sauger. The USDI Fish & Wildlife Service Website shows that Cascade County has one species listed as threatened; the Bald Eagle. The project is consistent with other developments commonly found in the area.

Wetlands - *Consult and assess whether the apparent wetland is a functional wetland (according to COE definitions), and whether the wetland resource would be impacted.*

Determination: Low likelihood of impact.

There are known wetlands associated with the existing reservoir, however this proposed pipeline route and pump station location should not affect the wetland resources in the area. The USDI Fish & Wildlife Service – Wetlands Online Mapper has no data available for the place of use for this project.

Ponds *- For ponds, consult and assess whether existing wildlife, waterfowl, or fisheries resources would be impacted.*

Determination: Low likelihood of impact.

The project involves storing water in an existing 1,962 AF reservoir. No impact to wildlife, waterfowl, or fisheries is anticipated as long as the applicant's well supplies all the water utilized by the center pivots and no increased burden is placed on the surface water source.

GEOLOGY/SOIL QUALITY, STABILITY AND MOISTURE - *Assess whether there will be degradation of soil quality, alteration of soil stability, or moisture content. Assess whether the soils are heavy in salts that could cause saline seep.*

Determination: Low likelihood of impact.

The USDA-NRCS Web Soil Survey indicates the dominant soil units in the area are Lawther silty clay and Gerber silty clay loam. The rating for these soil units could have very severe limitations that reduce the choice of plants or that require very careful management, or both. The sodium adsorption ratio is 0.0 signifying a low likelihood of impacts from saline seep.

Likely some short-term surface disturbance and erosion will occur with the initial installation of the irrigation system. Long-term effects (erosion, salinity, etc.) will depend upon management, but it is expected that farming practices will minimize any potential impact.

VEGETATION COVER, QUANTITY AND QUALITY/NOXIOUS WEEDS - *Assess impacts to existing vegetative cover. Assess whether the proposed project would result in the establishment or spread of noxious weeds.*

Determination: Low likelihood of impact.

The project would result in increased forage production. Normal farm weed management would be used to control noxious weeds potentially invading disturbed areas; therefore, no spread of noxious weeds would likely be associated with this application. It is the responsibility of the property owner to control noxious weeds on their property.

AIR QUALITY - *Assess whether there will be a deterioration of air quality or adverse effects on vegetation due to increased air pollutants.*

Determination: Low likelihood of impact.

It is unlikely air quality would be impacted; as this project will utilize a 60HP electric pump.

HISTORICAL AND ARCHEOLOGICAL SITES - *Assess whether there will be degradation of unique archeological or historical sites in the vicinity of the proposed project.*

Determination: Low likelihood of impact.

The State Historic Preservation Office found that there is a low likelihood cultural properties will be impacted; a cultural resource inventory is unwarranted at this time.

DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AND ENERGY - *Assess any other impacts on environmental resources of land, water and energy not already addressed.*

Determination: Low likelihood of impact.

No additional impacts are anticipated.

HUMAN ENVIRONMENT

LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS - *Assess whether the proposed project is inconsistent with any locally adopted environmental plans and goals.*

Determination: Low likelihood of impact.

The proposed action is consistent with historic agricultural practices in the area.

ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES - *Assess whether the proposed project will impact access to or the quality of recreational and wilderness activities.*

Determination: Low likelihood of impact.

The proposed action will not impact recreational activities in the area.

HUMAN HEALTH - *Assess whether the proposed project impacts on human health.*

Determination: Low likelihood of impact.

No impacts to human health have been identified.

PRIVATE PROPERTY - *Assess whether there are any government regulatory impacts on private property rights.*

*Yes___ No_**X**__ If yes, analyze any alternatives considered that could reduce, minimize, or eliminate the regulation of private property rights.*

Determination: No known impacts.

OTHER HUMAN ENVIRONMENTAL ISSUES - *For routine actions of limited environmental impact, the following may be addressed in a checklist fashion.*

Impacts on:

(a) *Cultural uniqueness and diversity?* **None**

(b) *Local and state tax base and tax revenues?* **None**

(c) *Existing land uses?* **None**

(d) *Quantity and distribution of employment?* **None**

(e) *Distribution and density of population and housing?* **None**

(f) *Demands for government services?* **None**

(g) *Industrial and commercial activity?* **None**

(h) *Utilities?* **None**

(i) *Transportation?* **None**

(j) *Safety?* **None**

(k) *Other appropriate social and economic circumstances?* **None**

2. *Secondary and cumulative impacts on the physical environment and human population:*

Secondary Impacts - No secondary impacts are anticipated.

Cumulative Impacts - At present there are 19 wells located within six miles of the proposed well that have sources identified as the Madison Aquifer in GWIC. The purpose of all but one of these wells is identified as domestic. The purpose of the remaining well is listed the DNRC water-rights database as irrigation with a total volume of 144 acre-feet per year. The Department estimates that individual domestic wells pump between 0.5 and 1.0 acre-feet per year and consume between 0.35 and 0.70 acre-feet per year. Therefore, nineteen wells could pump up to 163 acre-feet annually (approximately 0.2 cfs) from the Madison Aquifer.

There are 185 wells with sources identified as the Madison Aquifer listed in GWIC within 12 miles of the proposed well. The uses for these wells are listed as follows: 152 domestic, 4 industrial, 5 irrigation, 4 unknown, 8 public water supply, 10 stock, and 2 other. In addition to existing wells, 68 lots are proposed for the Foothills Ranch Phase 3 Subdivision located in Section 13, Township 20 North, Range 4 East approximately 7.5 miles from the proposed well and approximately 4.5 miles from Giant Springs. Existing and proposed domestic use within 12 miles of the proposed well is estimated to be 220 acre-feet per year based on 1 acre-foot per year per residence for 220 residences (152 + 68). The total permitted volume for other uses reported in the DNRC water rights database for wells within 12 miles of the proposed well is at least 1,100 acre-feet, bringing the total permitted volume to over 1,300 acre-feet per year (1.8 cfs).

At present, of the wells that have the Madison Aquifer listed as a source in GWIC, there are 531 wells within 12 miles of Giant Springs potentially pumping over approximately 1,800 acre-feet per year (2.5 cfs) and 100 wells within 6 miles of Giant Springs potentially pumping over approximately 1,200 acre-feet annually (1.7 cfs).

To date, groundwater pumping in the vicinity of Giant Springs is relatively small in comparison to the flow of the springs. But as more development takes place in this area, there will be higher demands for water for domestic, irrigation, stock, recreation and other uses, and higher potential for impact.

3. ***Describe any mitigation/stipulation measures:***

No mitigation measures have been identified.

4. ***Description and analysis of reasonable alternatives to the proposed action, including the no action alternative, if an alternative is reasonably available and prudent to consider:***

No action alternative: Deny the application. This alternative would result in none of the benefits of increased forage production and the related economic benefits being realized by the applicant.

PART III. Conclusion

1. Preferred Alternative

The preferred alternative is the proposed alternative, but only if the applicant proves the criteria in MCA 85-2-311.

2 Comments and Responses

The MT Department of Fish, Wildlife & Parks sent comments concerning the cumulative impacts section of this environmental assessment. This EA has been revised to address the concerns raised in the MT FWP letter dated 1/3/2008. See file for letter.

3. ***Finding:***

*Yes___ No_**X**__ Based on the significance criteria evaluated in this EA, is an EIS required?*

If an EIS is not required, explain <u>why</u> the EA is the appropriate level of analysis for this proposed action:

None of the identified impacts for any of the alternatives are significant as defined in ARM 36.2.524.

Name of person(s) responsible for preparation of EA:

Name: Douglas Mann
Title: Water Resources Specialist - LRO
Date: 1/24/2008